Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-89

MRL
Trout Creek, MT
November 13, 2006

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2006-89

1.Name of Railroad Operating Train #1: Montana Rail Link [MRL]	1a. Alphabetic Code: MRL	1b. Railroad Accident/Incident No.: 2006213
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident: N/A
3.Name of Railroad Responsible for Track Maintenance: Montana Rail Link [MRL]	3a. Alphabetic Code: MRL	3b. Railroad Accident/Incident No.: 2006213
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident: Month 11 / Day 13 / Year 2006	6. Time of Accident/Incident: 05:45: ☑ AM ☐ PM

7. Type of Accident/Indicent (single entry in code box): 1. Derailment; 2. Head on collision; 3. Rear end collision; 4. Side collision; 5. Raking collision; 6. Broken Train collision; 7. Hwy-rail crossing; 8. RR grade crossing; 9. Obstruction; 10. Explosion-detonation; 11. Fire/violent rupture; 12. Other impacts; 13. Other (describe in narrative): 01

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
0	N/A	N/A	0	System

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Trout Creek	57.1	N/A	MT	SANDERS

17. Temperature (F) (specify if minus)	18. Visibility (single entry) 1. Dawn 2. Day 3.Dusk 4.Dark	Code	19. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow	Code	20. Type of Track 1. Main 2. Yard 3. Siding 4. Industry	Code
33 F		4		3		1

21. Track Name/Number	22. FRA Track Class (1-9, X)	Code	23. Annual Track Density (gross tons in millions)	24. Time Table Direction 1. North 3. East	Code
Main Track		4	35		4

OPERATING TRAIN #1

25. Type of Equipment Consist (single entry): 1. Freight train; 2. Passenger train; 3. Commuter train; 4. Work train; 5. Single car; 6. Cut of cars; 7. Yard/switching; 8. Light loco(s).; 9. Maint./inspect.car; A. Spec. MoW Equip. Code: 1

26. Was Equipment Attended? 1. Yes 2. No: 1

27. Train Number/Symbol: CBKM SPB113

28. Speed (recorded speed, if available) R - Recorded E - Estimated: 47 MPH; Code: R

29. Trailing Tons (gross tonnage, excluding power units): 16321

30. Method(s) of Operation (enter code(s) that apply): a. ATCS; b. Auto train control; c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; g. Automatic block; h. Current of traffic; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; m.Special instructions; n. Other than main track; o. Positive train control; p. Other (Specify in narrative) Code(s): e, N/A, N/A, N/A, N/A

30a. Remotely Controlled Locomotive? 0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter; 2. South 4. West: 0

	31. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1)	First involved (derailed, struck, etc)	N/A	3	yes
(2)	Causing (if mechanical cause reported)	NCUX 11177	3	yes

32. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
0	0

33. Was this consist transporting passengers? (Y/N): N

34. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote	35. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	4	0	0	0	0	(1) Total in Equipment Consist	115	0	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	28	0	0	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
1300000	800000	E35C	N/A

Number of Crew Members / Length of Time on Duty

40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen	44. Engineer/Operator	45. Conductor
N/A	N/A	N/A	N/A	Hrs 5 Mi 50	Hrs 5 Mi 50

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	0	0	0
Nonfatal	N/A	0	0

49. EOT Device? 1. Yes 2. No: 1

50. Was EOT Device Properly Armed? 1. Yes 2. No: 1

51. Caboose Occupied by Crew? 1. Yes 2. No: 2

OPERATING TRAIN #2

52. Type of Equipment Consist (single entry): 1. Freight train; 2. Passenger train; 3. Commuter train; 4. Work train; 5. Single car; 6. Cut of cars; 7. Yard/switching; 8. Light loco(s).; 9. Maint./inspect.car; A. Spec. MoW Equip. Code: N/A

53. Was Equipment Attended? 1. Yes 2. No: N/A

54. Train Number/Symbol: N/A

55. Speed (recorded speed, if available) R - Recorded E - Estimated: 0 MPH; Code: N/A

57. Method(s) of Operation (enter code(s) that apply): a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track

57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled; 1 = Remote control portable

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56. Trailing Tons (gross tonnage, excluding power units): N/A

c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; o. Positive train control; p. Other (Specify in narrative)

Code(s): N/A | N/A | N/A | N/A | N/A

2 = Remote control tower
3 = Remote control transmitter - more than one remote control transmitter: N/A

58. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	0	N/A	N/A
(2) Causing (if mechanical cause reported)	0	N/A	N/A

59. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
N/A	N/A

60. Was this consist transporting passengers? (Y/N): N/A

61. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

63. Equipment Damage This Consist: 0

64. Track, Signal, Way, & Structure Damage: 0

65. Primary Cause Code: N/A

66. Contributing Cause Code: N/A

Number of Crew Members

67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen
N/A	N/A	N/A	N/A

Length of Time on Duty

71. Engineer/Operator: Hrs 0 Mi 0

72. Conductor: Hrs 0 Mi 0

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	0	0	0
Nonfatal	0	0	0

76. EOT Device? 1. Yes 2. No: N/A

77. Was EOT Device Properly Armed? 1. Yes 2. No: N/A

78. Caboose Occupied by Crew? 1. Yes 2. No: N/A

Highway User Involved

79. Type: A. Auto; B. Truck; C. Truck-Trailer.; D. Pick-Up Truck; E. Van; F. Bus; G. School Bus; H. Motorcycle; J. Other Motor Vehicle; K. Pedestrian; M. Other (spec. in narrative) — Code: N/A

80. Vehicle Speed (est. MPH at impact): N/A

81. Direction geographical) 1.North 2.South 3.East 4.West — Code: N/A

82. Position: 1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped — Code: N/A

86a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: N/A

Rail Equipment Involved

83. Equipment: 1.Train(units pulling); 2.Train(units pushing); 3.Train (standing); 4.Car(s) (moving); 5.Car(s) (standing); 6.Light Loco(s) (moving); 7.Light(s) (standing); 8.Other (specify in narrative) — Code: N/A

84. Position of Car Unit in Train: N/A

85. Circumstance: 1. Rail Equipment Struck Highway User; 2. Rail Equipment Struck by Highway User — Code: N/A

86b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: N/A

86c. State here the name and quantity of the hazardous materials released, if any.
N/A

87. Type of Crossing Warning: 1.Gates; 2.Cantilever FLS; 3.Standard FLS; 4.Wig Wags; 5.Hwy. traffic signals; 6.Audible; 7.Crossbucks; 8.Stop signs; 9.Watchman; 10.Flagged by crew; 11.Other (spec. in narr.); 12.None

Code(s)							
	N/A	N/A	N/A	N/A	N/A	N/A	N/A

88. Signaled Crossing Warning (See instructions for codes) — Code: N/A

89. Whistle Ban 1. Yes 2. No 3. Unknown — Code: N/A

90. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach — Code: N/A

91. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown — Code: N/A

92. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown — Code: N/A

93. Driver's Age: 0

94. Driver's Gender 1. Male 2. Female — Code: N/A

95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown — Code: N/A

96. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify in narrative) — Code: N/A

97. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown — Code: N/A

98. View of Track Obscured by (primary obstruction) 1. Permanent Structure 2. Standing Railroad Equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicle 7. Other (specify in narrative) 8. Not obstructed — Code: N/A

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	0	0

99. Driver Was 1. Killed 2.Injured 3. Uninjured — Code: N/A

100. Was Driver in the Vehicle? 1. Yes 2. No — Code: N/A

102. Highway Vehicle Property Damage (est. dollar damage): 0

103. Total Number of Highway-Rail Crossing Users (include driver): 0

104. Locomotive Auxiliary Lights? 1. Yes 2. No — Code: N/A

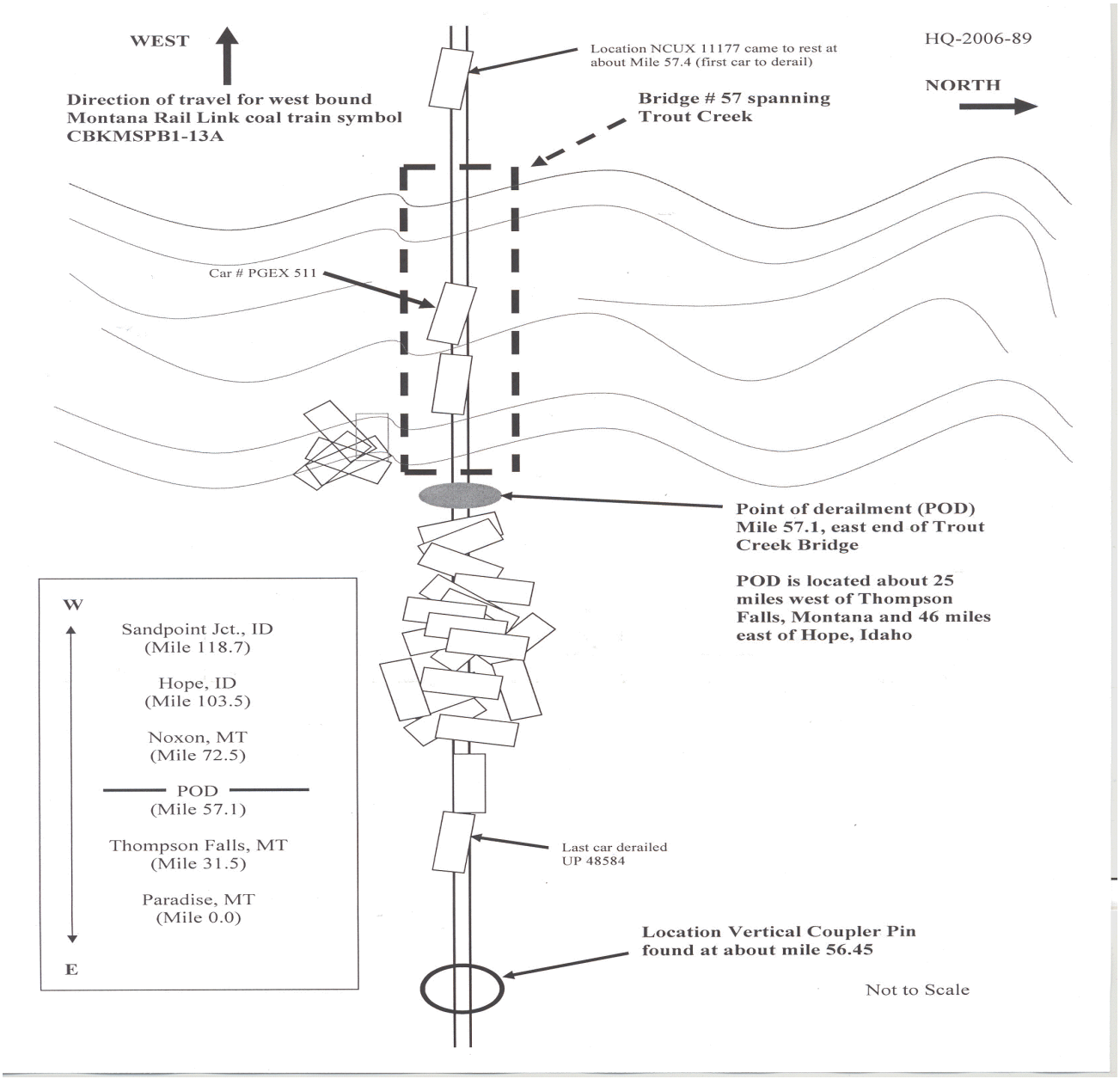
105. Locomotive Auxiliary Lights Operational? 1. Yes 2. No — Code: N/A

106. Locomotive Headlight Illuminated? 1. Yes 2. No — Code: N/A

107. Locomotive Audible Warning Sounded? 1. Yes 2. No — Code: N/A

108. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED.

HQ-89-06
Sketch.gif



109. SYNOPSIS OF THE ACCIDENT

On November 13, 2006, at 5:45 a.m. (MST), a westbound Montana Rail Link (MRL) loaded coal train symbol C-BKMSPB1-13A derailed on the MRL System, 4th Subdivision, approximately 3.1 miles west of Trout Creek, Montana, at milepost 57.1. The train was traveling on a single main track at a recorded speed of 47 mph. The maximum authorized timetable track speed in the area of the accident is 60 mph.

The train consisted of four locomotives, 115 railcars of coal, with 16,321 trailing tons and was 6,392 feet in length. A total of 28 cars, 3rd through the 30th, derailed. There were no injuries reported and no release of hazardous materials. The estimated damage of the derailment was $2,100,000 ($800,000 track and bridge and $1,300,000 equipment).

At the time of the derailment it was dark with rain. The temperature was 33°F.

The probable cause of the accident was a missing coupler pin retaining plate which resulted in the coupler pin dropping out of position and the coupler to be extracted. This resulted in an unintentional separation of the train. The extracted coupler then struck the draft sill of the following car which knocked it off center and caused the derailment. (E35C).

110. NARRATIVE

Circumstances Prior to the Accident

On November 13, 2006 after completing more than the statutory off duty time, a crew consisting of two engineers, (all train crew members on MRL are certified locomotive engineers) reported for duty at their home terminal at Missoula, Montana at 11:55 p.m. (MST). The crew was assigned to operate the westbound BNSF unit coal train C-BKMSPB1-13A, from Missoula to Hauser, Idaho a distance of 263 miles.

The train consisted of four locomotives, 115 loaded cars of coal, had 16,321 trailing tons and was 6,392 feet in length. The train received a class 1A (1,000 mile) brake test at Missoula on November 13, 2006, at 11:50 p.m. by MRL Carmen. According to the crew, the engineer performed the calendar day locomotive inspections before departing. The train departed Missoula at 12:50 a.m.

Approaching the derailment site from the east, traveling west, there is 3168 feet of tangent track leading into a 2 degree, right hand curve that is 3150 feet long. Subsequent to this curve is a short stretch of tangent track, leading across bridge number 57. This stretch of tangent track is 792 feet long, leading into a 2 degree, left hand curve that is approximately 3160 feet in length. The Point Of Derailment (POD) was approximately 50 feet east of the bridge as the train exited the curve and entered the bridge. After derailing, the train traveled approximately 712 feet, across the bridge and into the 2 degree left hand curve. The lead locomotive of the train came to a stop approximately 4,685 feet west of the (POD). The grade at the (POD) is level, coming off of a .42 percent ascending grade in the westward direction of travel.

The train approached the derailment area traveling geographically and timetable west. The engineer was seated at the controls on the right (north) side of the leading locomotive and the assistant engineer was seated on the left (south) side.

The Accident

Approaching the accident site, the train was being operated at 47 mph as recorded by the event recorder of the controlling locomotive. In the accident area, trains operate on a single main track under the authority of a Traffic Control System and are controlled by an MRL dispatcher located in Missoula. The maximum authorized speed for freight trains is 60 mph as designated in the current MRL Timetable No. 13.

According to the crew, as the train began to operate over the Noxon Reservoir bridge (Bridge 57) an undesired train induced emergency application the train air brakes occurred. The assistant engineer looked back toward the bridge, saw sparks, and concluded that the train was derailing.

After the train stopped, the assistant engineer notified the MRL dispatcher in Missoula, via radio, that their train had derailed. The assistant engineer then proceeded to assess the extent of damage. He walked toward the rear of the train and could see that some of the cars had derailed in the vicinity of the bridge. He and the engineer attempted to cross the bridge in an effort to further assess the extent of damages; however, they determined it to be unsafe to continue across the bridge, returned to the locomotive, and waited for railroad officials to arrive.

Analysis and Conclusions

This accident met the criteria for 49 CFR Part 219 Subpart C Post Accident Toxicological Testing and the crew was tested. The test results were negative.

Post accident investigation revealed that 28 cars, the 3rd through the 30th, derailed. Five cars were found submerged in the Noxon Reservoir. There were no injuries reported and no release of hazardous materials. The estimated damage of the derailment was $2,100,000 ($800,000 track and bridge and $1,300,000

equipment).

On November 9, 2006, four days prior to the accident, the MRL roadmaster conducted a track inspection by traversing the track with a hi-rail vehicle between milepost 118.6 and milepost 31.7. No defective conditions were noted in the accident area.

On August 14, 2006, an inspection car conducted an internal rail inspection in the area of the accident from milepost 35.0 to milepost 63.0. One traverse defect was found at milepost 55.43 which was corrected the same day.

On July 14, 2006, the BNSF track Geometry Test Car (Car 87) conducted a test over the MRL 4th Subdivision and the accident area. No FRA exceptions were noted between milepost 48.36 and 58.58.

FRA and MRL post accident investigation did not reveal any track conditions that would have caused or contributed to the derailment.

There were no train handling issues that would have caused or contributed to the derailment.

There were no public entities that responded to the derailment.

Post accident investigation revealed that the trailing coupler of the 3rd car (NCUX 11177) became disconnected from the car when the vertical coupler pin fell from position due to a missing retaining plate. The vertical coupler pin connects the coupler to the draft assembly and ultimately the car. The vertical coupler pin is retained in position by a retaining plate secured to the bottom the car. If the retaining plate is not in position, gravity will cause the coupler pin to fall out. When this happens, the coupler can be easily removed from the car. Train dynamics, caused by track gradient and curvatures prior the derailment, caused the train to stretch. This would have caused the disconnected coupler to be pulled from the car resulting a separation between the 3rd and 4th cars. Since the couplers of the 3rd and 4th cars are shelf type couplers, the disconnected coupler did not drop to the ground but remained coupled to the coupler of the 4th car. Markings and damage found on the draft sill of the 3rd car indicate the 3rd and 4th cars collided after having separated. The vertical coupler pin was found about one mile east (prior to) of the derailment site. The missing retaining plate was not found.

Post accident mechanical inspections of the train consist revealed five cars with one or more insecure vertical coupler connection pin retainer plates. It was also discovered that five days prior to the derailment, on November 8, 2006, there was an incident on MRL in which a vertical coupler connection pin fell from a car (NCUX 11248), near Trout Creek. When the connection pin fell from the car, the coupler became disconnected from the yoke and fell to the tack structure. The car was of the same series and design as the cars involved in this derailment. These findings resulted in a series of focused inspections by FRA and railroad inspectors. FRA headquarters staff contacted owner of this series of cars for corrective action.

Probable Cause

The Federal Railroad Administration found that the probable cause of the accident was a missing coupler pin retaining plate which resulting in the coupler pin dropping out of position and the coupler to be extracted. This resulted in an unintentional separation of the train. The extracted coupler then struck the draft sill of the following car which knocked it off center and caused the derailment. (E35C).